

Listing of Claims:

Claim 1 (currently amended) ~~Membrane~~ A membrane electrochemical generator fed with gaseous reactants and comprising

a multiplicity of reaction cells and a multiplicity of cooling cells interposed between said reaction cells, assembled in a filter-press configuration,

each of said reaction cells being delimited by bipolar sheets and being provided with metallic reticulated current collectors/distributors,

each of said cooling cells being delimited by bipolar sheets and being provided with a reticulated conductive element,

said bipolar sheets ~~are~~ being formed by a metallic central body having dimensions slightly exceeding those of the active area of the reaction cells and being integrated in a frame made of polymeric material,

said frame being provided with first and second feed openings for the passage of said gaseous reactants, first and second discharge openings for the withdrawal of ~~said~~ reaction products optionally mixed with exhausts and openings for feeding and extracting a coolant, and said frame containing distributing and collecting channels for putting the openings in direct communication with the reaction cells and cooling cells, respectively.

Claim 2 (currently amended) ~~Generator according to~~ A generator of claim 1, ~~characterised in that~~ wherein said polymeric material is of the thermoplastic type.

Claim 3 (currently amended) ~~Generator according to~~ A generator of claim 1, characterised in that wherein said polymeric material is of the thermosetting type.

Claim 4 (currently amended) ~~Generator according to anyone of the preceding claims,~~ characterised in that A generator of claim 1 wherein said frame is integrated with said central metallic body by moulding or gluing.

Claim 5 (currently amended) ~~Generator according to~~ A generator of claim 4 characterised in that wherein said metallic central body is previously provided with leachable elements having the shape of said distributing and collecting channels and that said leachable elements are dissolved with a reactant after said moulding.

Claim 6 (currently amended) ~~Generator according to~~ A generator of claim 5 characterised in that wherein said leachable elements are made of aluminum and said reactant is caustic soda.

Claim 7 (currently amended) ~~Generator according to~~ A generator of claim 4 characterised in that wherein said metallic central body is previously provided with preformed elements having the shape of said distributing and collecting channels.

Claim 8 (currently amended) ~~Generator according to~~ A generator of claim 7 characterised in that wherein said preformed elements are made of metal or plastics.

Claim 9 (currently amended) ~~Generator according to~~ A generator of claim 8 characterized in that wherein said metal is stainless steel.

Claim 10 (currently amended) ~~Generator according to anyone of claims 1 to 3 characterised in~~ that A generator of claim 1 wherein said frame integrated with said metallic central body consists of two preformed components containing said distributing and collecting channels.

Claim 11 (currently amended) ~~Generator according to~~ A generator of claim 10 characterised in that wherein each of said two preformed components constitutes a face of said frame.

Claim 12 (currently amended) ~~Generator according to anyone of claims 10 or 11 characterized~~ in that A generator of claim 10 wherein said two components are assembled with each other and with said metallic central body by thermal bonding or gluing with an adhesive.

Claim 13 (currently amended) ~~Generator according to anyone of claims 4 or 12 characterised in~~ that A generator of claim 4 wherein said metallic central body has a micro-rough and/or chemically reactive surface obtained by sandblasting and/or chemical attack.

Claim 14 (currently amended) ~~Generator according to~~ A generator of claim 4 characterised in that wherein said metallic central body is provided with openings in the peripheral zone suited to ~~favour~~ favor the adhesion of said moulded frame.

Claim 15 (currently amended) ~~Generator according to one of claims 1 to 14, characterised in that~~ A generator of claim 1 wherein in a filter-press configuration, the coupling between said openings of said frames determines the formation of longitudinal feed manifolds, the coupling between said discharge openings determines the formation of longitudinal discharge manifolds, the coupling between said openings for feeding and extracting a coolant determines the formation of manifolds for circulating said coolant.

Claim 16 (currently amended) ~~Generator according to one of claims 1 to 15 characterised in that~~ A generator of claim 1 wherein said frame further comprises a multiplicity of holes for housing tie-rods by means of which the tightening of said electrochemical generator is accomplished.

Claim 17 (currently amended) ~~Generator according to anyone of the preceding claims, characterised in that~~ A generator of claim 1 wherein said metallic central body comprises a multiplicity of first calibrated holes for the passage of said gaseous reactants and a multiplicity of second calibrated holes for the discharge of reaction products and optionally exhausts.

Claim 18 (currently amended) ~~Generator according to~~ A generator of claim 17 ~~characterised in that~~ wherein said first calibrated holes are mutually aligned and positioned in correspondence of said distributing channels of said frame and that said second calibrated holes mutually aligned and positioned in correspondence of said collecting channels of said frame.

Claim 19 (currently amended) ~~Generator according to anyone of claims 17 or 18 characterised in that~~ A generator of claim 17 wherein said first and second calibrated holes are spaced by about 1 mm from the inner edge of said frame.

Claim 20 (currently amended) [[Generator according to anyone of claims 17 - 19 characterised in that]] A generator of claim 17 wherein said first calibrated holes have a diameter ~~comprised~~ between 0.1 and 5 mm.

Claim 21 (currently amended) [[Generator according to anyone of claims 1 - 17 characterised in that]] A generator of claim 1 wherein said metallic central body comprises a multiplicity of aligned calibrated holes for injecting water into said reaction cells, said holes being ~~preferably~~ spaced by about 1 mm from the inner edge of said frame.

Claim 22 (currently amended) ~~A generator according to~~ A generator of claim 21 characterised in that wherein said aligned calibrated holes are positioned in correspondence of additional water distributing channels.

Claim 23 (currently amended) [[Generator according to anyone of claims 1 - 17 characterised in that]] A generator of claim 1 wherein said central body comprises a multiplicity of aligned calibrated holes for distributing the gaseous reactants, a multiplicity of aligned calibrated holes for injecting water and a multiplicity of aligned calibrated holes for withdrawing the products, the exhausts and the residual injected water, each of said calibrated holes positioned in correspondence of one of said distributing or of said collecting channels.

Claim 24 (currently amended) ~~Generator according to~~ A generator of claim 23 characterised in
~~that~~ wherein said aligned calibrated holes for distributing the gaseous reactants and said aligned
calibrated holes for withdrawing the products, the exhausts and the residual injected water are
spaced by about 1 mm from the edges of said frame.